



## EDMS 5.0.2 Release Notes

### June 29, 2007

EDMS 5.0.2 provides several bug fixes and improvements compared to EDMS 5.0.1. This document provides a summary of the changes between EDMS 5.0.1 and EDMS 5.0.2.

#### **Changes to EDMS external modules**

##### **AERMAP (updated to version 06341) Enhancements**

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1. Informational files regarding DEM files and domain setup (MAPDETAIL.OUT, MAPPARAMS.OUT, and DOMDETAIL.OUT) are automatically generated with hard-coded filenames.
  2. Added an "Input Options Summary" page to the main AERMAP.OUT file, summarizing the number of sources, receptors and DEM files included in the AERMAP run, as well as other input data.
  3. EDMS no longer displays the DOS Prompt while AERMAP is running.
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For the complete changes to AERMAP, please refer to the Model Change Bulletin found at [http://www.epa.gov/scram001/dispersion\\_related.htm](http://www.epa.gov/scram001/dispersion_related.htm)

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##### **AERMET (updated to version 06341) Enhancements**

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1. Modified code to use a single AERMET.EXE executable file, replacing the separate STAGE1N2 and STAGE3 executables. The new AERMET executable is also hardcoded to read the input data from an 'AERMET.INP' file, but the format of the input files has not changed.
  2. Modified several subroutines to impose a lower limit on the value of surface roughness length of 0.001 meters, for consistency with the AERMOD dispersion model.
  3. Corrected several problems associated with the extraction and processing of Integrated Surface Hourly Data (a.k.a., ISHD, ISH, ISD, TD-3505).
  4. EDMS no longer displays the DOS Prompt while AERMET is running.
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**Note:** Users must regenerate all surface (.SFC) and profile (.PFL) files with the latest version of AERMET in order to be compatible with the latest version of AERMOD. If rerunning the dispersion of a previous study, CSSI recommends using the AERMET wizard to regenerate these files prior to any other action.

For the complete changes to AERMET, please refer to the Model Change Bulletin found at [http://www.epa.gov/scram001/metobsdata\\_procaccprogs.htm](http://www.epa.gov/scram001/metobsdata_procaccprogs.htm)

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## **AERMOD (updated to version 07026) Enhancements**

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1. Added special processing for PM-2.5 to calculate design values in accordance with the PM NAAQS. The design value for 24-hour averages is based on the high-eighth-high (H8H) averaged over N years.
  2. The "post-1997" PM-10 processing based on H4H averaged over N years has been removed since that standard was vacated. The PM-10 design value for 24-hour averages is based on the high-sixth-high (H6H) over five years (for NWS data).
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For the complete changes to AERMOD, please refer to the Model Change Bulletins found at [http://www.epa.gov/scram001/dispersion\\_prefrec.htm](http://www.epa.gov/scram001/dispersion_prefrec.htm)

## **MOBILE**

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1. The NO REFUELING option has been added as a MOBILE parameter to prevent the calculation the refueling emissions from gasoline-fueled vehicles.
  2. The diesel sulfur values are updated to 500ppm for years prior to 2006, 43ppm for the years 2006 through 2009 and 11ppm for year 2010 and later, ("Technical Guidance on the Use of MOBILE6.2 for Emission Inventory Preparation p. 64")
  3. The Reid Vapor Pressure has been adjusted to fit within the 7 to 9 psi range that is being used to model the default summer months.
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## **EDMS Improvements and Bug Fixes**

### **EDMS 5.0.1 Behavior**

### **EDMS 5.0.2 Behavior**

#### ***Aircraft Operations and Assignments window***

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| 1. The user can only search for aircraft by scrolling down the aircraft list.                 | An aircraft search box has been added. The user can search for aircraft by typing any part of the aircraft name. |
| 2. <i>Fuel Sulfur Content</i> , under the <i>Engine Emissions</i> tab does not load properly. | The <i>Fuel Sulfur Content</i> value is saved and loaded properly.   |
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3.	Double-clicking on the “+” box in the <i>Available Aircraft/Engines</i> list sometimes causes whatever aircraft is currently selected to be added to the study.	Double-clicking on “+” box in the <i>Available Aircraft/Engines</i> list does not add an aircraft to the study.
4.	<i>Gate Assignment</i> can be lost during navigation of the <i>Aircraft Operations and Assignments</i> window.	<i>Gate Assignment</i> does not get lost and the user can unselect a <i>Gate Assignment</i> by selecting <i>None</i> .
5.	Non-default <i>GSE Assignments</i> of one aircraft are sometimes transferred to another aircraft.	Non-default <i>GSE Assignments</i> are properly assigned and saved to the correct aircraft.
6.	N/A.	There are several improvements to the <i>APU Assignment</i> tab.

### ***Airport Properties***

1.	Changing the airport <i>elevation</i> does not set the “Emissions out of date” indicator.	Changing the airport <i>elevation</i> sets the “Emissions out of date” indicator, causing emission to have to be updated.
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### ***Airport View***

1.	The origin (0,0) point of the X-Y coordinates is not shown.	Cross hairs have been added to indicate where the (0,0) point is.
2.	In step 3 of the <i>Wallpaper Wizard</i> , the input of the <i>Real-World Distance</i> is in meters, even if <i>English</i> unit system is selected.	The input for the <i>Real-World Distance</i> has to be entered in the unit system selected in the Study setup.
3.	In step 3 of the <i>Wallpaper Wizard</i> , the input of the <i>Real-World Distance</i> does not always accept decimal numbers.	A decimal number can be entered as the <i>Real-World Distance</i> in step 3 of the <i>Wallpaper Wizard</i>

### ***Concentrations View***

1.	If the user is viewing the <i>Concentrations</i> and tries to open another window, EDMS may fail.	EDMS will not fail if the user is viewing the <i>Concentrations</i> and opens another window.
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2. The user is able to sort while the <i>Concentrations</i> are loading, which may show misleading rankings, since the rankings are shown based only on the concentrations that have been loaded at the time.	Sorting is not allowed while the <i>Concentrations</i> are loading, so sorting by concentrations will properly rank based on the entire file.
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### ***Configurations window***

1. Deleting a configuration from the <i>Available</i> list sets the “Emissions out of date” indicator.	The “Emissions out of date” indicator is not set when a configuration is deleted from the <i>Available</i> list, since doing so has no affect on emissions.
2. N/A	There are several improvements to the <i>Configurations</i> window’s overall functionality.

### **Converting an EDMS 4.5 Study to EDMS 5.0**

1. Conversion can cause EDMS to fail, if some EDMS 4.5 tables contain erroneous entries.	EDMS converts only valid entries and ignores erroneous table entries.
2. Converted roadways may have 0 length.	The roadways length is converted properly.
3. The airport’s <i>annual average</i> high and low temperature values are not properly converted.	<i>Annual average</i> high and low temperatures are converted properly.
4. The default aircraft APU is assigned to converted aircraft with no APU.	Aircraft with no APU are properly converted.
5. MOBILE is not run after the conversion process.	MOBILE is run after the study conversion finishes so that system-generated Emissions Indices can be updated using the weather parameters in the converted study.

### ***Default Taxi Times***

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| 1. The <i>Default Taxi Times</i> are not saved and applied properly. | The <i>Default Taxi Times</i> are applied and saved properly. |
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### ***Emissions Inventory***

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| 1. When printing the <i>Emissions inventory</i> the Scenario - Airport - Year are not listed. | The appropriate Scenario - Airport - Year are listed When printing the <i>Emissions inventory</i> . |
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### **Emissions Processing**

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| 1. N/A | The aircraft THC to VOC conversion factors have been revised to express VOC emissions as VOC rather than as methane equivalence. Please see the file “PM25_VOC.DBF” for the updated conversion factors. |
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| 2. The FOA3 methodology was used for calculating aircraft PM for all airports. | Aircraft PM emission from all US airports are now calculated using the new EPA-approved FOA3a methodology, which includes additional reasonable margins to accommodate uncertainties. Aircraft PM emissions from non-US airports still use the FOA3 methodology. |
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| 3. N/A | Corrected a sign error in the equation for the non-volatile component of PM in FOA3 for aircraft with a smoke number larger than 30. |
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| 4. N/A | Aircraft engines with HC emission factor of 0 for idle mode have been changed to use 0.1 in order to properly model Hydrocarbon startup emissions. See the “Notes” column of the Engine Emissions DBF system table for more information. |
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5. The Boeing Fuel Flow Method 2 (BFFM2) computed saturation vapor pressure (i.e., the maximum pressure exerted by water vapor at a given ambient temperature) with the Goff-Gratch formula.	<p>BFFM2 computes saturation vapor pressure with the Magnus Teten formula:</p> $P_v = (6.107)10^{\left(\frac{aT}{b+T}\right)},$ <p>where <math>P_v</math> is the saturation vapor pressure in kiloPascals, <math>T</math> is the temperature in degrees Celcius, <math>a = 7.5</math> and <math>b = 237.3</math>.</p>
6. For BFFM2, the exponent of the humidity correction factor, $H$ , for computing NOx was:	<p>The equation for the exponent of the humidity correction factor is revised to:</p> $H = -19.0 \left( \frac{0.62198\phi P_v}{P - \phi P_v} - 0.0063 \right), \text{ where}$ <p><math>\phi</math> is the relative humidity, <math>P_v</math> is the saturation vapor pressure and <math>P</math> is the total ambient pressure.</p>
7. N/A	Several additional minor technical changes are implemented for BFFM2 to improve robustness in rare cases with negligible impact on emissions.
8. The Britten-Norman BN-2A Mk III Trislander, and the Yakovlev 40 Codling aircraft incorrectly have 2 engines.	Corrected the number of engines of the Britten-Norman BN-2A Mk III Trislander, and the Yakovlev 40 Codling aircraft to 3.

## Error Reporting

1. Errors that occur while validating a study after selecting <i>Update Emissions Inventory</i> are saved in a file named “err.txt”.	Errors that occur while validating a study after selecting <i>Update Emissions Inventory</i> are saved in a file named “err.txt” and are also displayed in the screen. The validation also occurs every time a study is loaded.
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### ***Gates window***

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| 1. N/A | Numerous improvements have been implemented in the <i>Gates</i> window to improve the window's overall functionality and stability. |
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### ***Generate AERMOD Input Files***

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| 1. Receptor elevation is not properly saved in the INP files. | The INP files contain the proper receptor elevation. |
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### ***GSE Population window***

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| The GSE Population dialog produced errors upon switching between “default age” and “specific age” for the year of manufacture and age emissions parameters | The error associated with the selection of age has been corrected. Users can now choose “specific age” without disabling the manufactured year and age edit boxes. |
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### **Indicators**

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| 1. There is no “Save study” indicator. | A “Save study” indicator is added. When changes have been made to a study and have not been saved, a “*” is placed at the end of the study name in the EDMS left pane. |
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| 2. There is no “Emissions out of date” indicator. | An “Emissions out of date” indicator is added. When changes have been made to a scenario-airport combination which would result in change of emissions, a “*” is placed at the end of the airport name in the EDMS left pane to indicate that the emissions need to be updated. |
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### ***Receptors window***

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| 1. In a study with multiple scenarios, if the <i>Receptors</i> window is open, clicking on the other scenarios could cause EDMS to fail. | The user is able to navigate through the different scenarios when the <i>Receptors</i> window is open. |
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### ***Roadways window***

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| 1. There is a small discrepancy in <i>roadways</i> emissions with dispersion enabled and not enabled due to round-off error between the roadway length being calculated from the exact X-Y points with dispersion enabled versus the 2-decimal place length (found in the GUI) used when dispersion is not enabled. | When dispersion is enabled, EDMS rounds the calculated roadway length (based on the X-Y end points) to the same number of decimal places as that found in the GUI for user-specified length when dispersion is not enabled. This results in <i>roadways</i> emissions being the same. |
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### ***Taxipaths window***

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| 1. The <i>notes</i> column only displays messages when there are no taxiways in a taxipath. | The <i>notes</i> column displays more warnings and messages related to the taxipaths. |
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### ***Weather window***

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| 1. Running MOBILE from the <i>Weather</i> window may produce unwanted results depending on the unit system used.                                      | The unit system error on the Weather window has been corrected. The appropriate input data is now passed which enables MOBILE to produce the correct results, |
| 2. If the user edits a value in the <i>Use Annual Averages</i> list, MOBILE asks to run even if there are no parking or roadway sources in the study. | MOBILE runs from the weather menu only when parking or roadways are in the study.   |
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### **Other Changes**

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| 1. If dispersion is enabled, EDMS will report an error if there are no taxipaths defined, even if there are no aircraft in the study. | There is no need to define taxipaths if there are no aircraft in the study, when sequencing and/or dispersion is selected. |
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2. Gates, runways and taxiways that are referenced by other study elements can be moved to the <i>Available</i> list without a warning to the user when sequencing is not selected.	Moving gates, runways and taxiways to the <i>Available</i> list brings up a warning if they are referenced by other study elements even when sequencing is not selected (e.g., deleting a taxiway which is part of a taxipath).
3. Deleting gates, runways and taxiways does not remove any taxipaths.	If the user deletes gates, runways and taxiways from the <i>Available</i> list, EDMS will delete all taxipaths which were associated with the deleted gates, runways and taxiways.
4. When a study which contains user-created aircraft is loaded, but that user-created aircraft is defined, all study aircraft are loaded with a default profile and 0 operations.	When a user-created aircraft is not defined, the undefined user-created aircraft is removed from the study, while all other study aircraft are loaded properly.
5. When the user executes the <i>Save As</i> command, only the root folder is copied.	All subfolders are also copied when the <i>Save As</i> command is executed.